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Application for (		**Specify from (k)**	
Principle Applic	Westport County Water district	**Does Proposal in**	☐
Project Title	Westport Water Tank Replacement		
First Name-Aut	Kenneth		
Last Name (AA)	Rogers		
Title			
Street Address			
PO Box	95		
City	Westport		
State	CA		
Zip Code	95488		
Telephone Num	(707) 964-77		
Fax Number (Inc	(707) 964-7		
E-mail Address	rogers@mcm.org		
First Name-Con	Steven X.		
Last Name-CP	McHaney		
Contact-Title			
Contact-Street	633 Third Street		
Contact-PO Box			
Contact-City	Eureka		
Contact-State	CA		
Contact-Zip Cod	95501		
Contact-Phone	(707) 443-83		
Contact-Fax Nu	(707) 444-83		
Contact-E-Mail	stevenmchaney@w-and-k.com		
Funds Requeste	$260,339.00		
Applicant Funds			
Total Project Co	$206,339.00		
Estimated Total	$208,604.00		
Percentage of Be	100%		
Percentage of Be			
Estimated Annu	2.75		
Estimated Total	28		

Over _____ Nu	10
Estimated Benef	Increased flow in Wages Creek for fisheries protection
Duration of Proj	10/02-09/03
State Assembly	1
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County-location	Medocino
Most recent Urb	
Type Applicant-	b) County
DWR WUE Proje	
Project Focus	b) Urban
Project Type	a) Implementation of Ur
Quantifiable Ob	0

PROPOSAL PART TWO

PROJECT SUMMARY

This project proposed to replace the deteriorating 100,000 gallon redwood water tank which serves the Westport County Water District (District).

The Westport County Water District is located approximately 25 miles north of Fort Bragg along the Mendocino County coast on Highway 1. The area is a rural residential community and has a small commercial district. The District was established in 1972, and is supplied with water from a surface water intake system on Wages Creek.

The District distribution system is fed by one 100,000 gallon redwood tank. This tank is original to the system and has been experiencing increasing problems as it ages. There has been significant leakage from the wood stave tank, as well as the piping and connections to the tank. The tank telemetry has become non-functional over time. The result is the District suffers water losses through leaks in the storage system and tank overflows which results in higher costs.

The objective of this project is to improve the water use efficiency of the County Water District in Westport and improve water system revenues and the health and safety of the water supply. This will be accomplished with the proposed project through the replacement of their existing leaking 100,000 gallon redwood water tank and connected piping. The proposed project would improve management of the Westport water system, increase water system revenues, improve the safety of the water supply and increase the optimization of demands on the water source.

The proposed project consists of 12 tasks, which are as follows:

- Task one will be the completion of any required environmental documentation
- Task two will be the completion land surveying
- Task three will be the completion of the Geotechnical evaluation
- Task four through seven will be to design the project.
- Task eight will put the project out for bid.
- Task nine will be the construction phase.
- Task ten will closeout the construction project.
- Task eleven will be administration of the grant, and
- Task twelve will be quarterly reporting to the Department of Water Resources.

The amount of water saved by reducing system leaks and eliminating tank overflows was estimated to be 9 million gallons (27.5 ac-ft) over 10 years or an annual average of 0.9 million gallons (2.75 ac-ft). The beneficiaries of water conservation are discussed below.

The total project costs amount to $206,339. The project benefits amount to $ 208,604. These figures result in a cost benefit ratio of 1.01. This B/C ratio shows that the project is locally cost effective, which is a requirement of the Prop 13 Urban Grant program.

A. SCOPE OF WORK: RELEVANCE & IMPORTANCE

1. Nature, Scope, and Objectives of the Project

The objective of this project is to improve the water use efficiency of the County Water District in Westport and improve water system revenues and the health and safety of the water supply. This will be accomplished with the proposed project through the replacement of their existing leaking 100,000 gallon redwood water tank and connected piping. The proposed project would improve management of the Westport water system, increase water system revenues, improve the safety of the water supply and help optimize the use of water sources.

2. Statement of Critical, Local, Regional, Bay-Delta, State or Federal Water Issues

The Westport County Water District (District) is located approximately 25 miles north of Fort Bragg along the Mendocino County coast on Highway 1. The general District location is shown on Figure 1 and the District Boundary is shown in Figure 2. The District was established in 1972. The District is supplied with water from a surface water intake system on Wages Creek, which was installed in 1976 to serve the predominately low income people of the area. The District owns and operates their own storage and distribution system as well.

The District was formed to provide water and sewer services to approximately 250 homes and businesses. There are 58 full-time residential households. The District continues to grow and has long term potential for expansion of residential and commercial developments. There is an existing contract with Wages Creek Campground for the purchase of water. Cal-Trans and independent contractors also purchase water from the District. All water connections are metered.

Need for the Project

The District distribution system is fed by one 100,000 gallon redwood tank. This tank is original to the system and has been experiencing increasing problems as it ages. There has been significant leakage from the wood stave tank, as well as the piping and connections to the tank. The tank telemetry has become non-functional over time. The result is the District suffers water losses through leaks in the storage system and tank overflows.

The District has performed maintenance on the wood tank many times, and as the tank ages the maintenance becomes more frequent and the leakage increases. This is part of the nature of a redwood tank installed in a coastal climate. The salt air rusts the hoops on the tank, which then can not be adequately tightened and leads to increased leakage over time as well as increased maintenance costs. The cyclic wetting and drying of the tank shrinks and warps the staves that increase the rate of leakage. The roof of the tank has deteriorated, which is a health and safety concern and can lead to increased evaporative losses. The leakage from croze ring at the base of the tank increases with time as the tank deteriorates and the tank must be drained to repair it. Since the District has only a single tank, draining it leaves the District with no water to meet demands and leaves the District without fire protection during maintenance. The telemetry

system also does not function properly, which results in additional water losses through tank overflows.

For the water system to be economically viable over the long term, the District must minimize water system losses and reduce maintenance to minimize lost revenue and reduce costs. Replacing the deteriorating redwood tank will provide effective long term water conservation and revenue generation.

The California Department of Health Services (DHS) has raised health and safety concerns about the condition of the tank.. The installation of a new tank would improve the safety of the water supply for the customers of the District.

Recommended for approval at the August 21, 2001 Mendocino County Board of Supervisors meeting, was a resolution declaring a state of emergency relative to insufficient water flows for the Westport County Water Agency. Water conservation through replacement of the storage tank could help alleviate the conditions that lead to this water emergency.

The proposed project is needed for the District to decrease system water losses, reduce costs, and increase revenues to create a healthier and more financially stable public water supply system..

Consistency with Management Plans

The Mendocino County General Plan includes several components, which support the reduction of water system losses. The Plan states, "The County shall strive to make optimum use of its water supplies." The Mendocino County General Plan supports energy conservation. Reductions in system water losses would reduce the total amount of water that needs to be pumped into storage, thus saving energy. Finally, the County Plan supports providing instream flows adequate to maintain and protect historic fisheries values within all county streams. The reduction of unnecessary demands on the District's water source, Wages Creek, would leave more water instream for beneficial fisheries and wildlife use. Wages Creek is habitat for Coho Salmon which is an endangered species, so water conservation through replacement of the District's tank would directly benefit endangered species.

The Department of Water Resources Bulletin 160-98, "The California Water Plan," supports reducing water distribution system losses. Two of the Urban Water Conservation Options presented in the California Water Plan are for the reduction of distribution system losses.

B. SCOPE OF WORK: TECHNICAL/ SCIENTIFIC MERIT, FEASIBILITY, MONITORING AND ASSESSMENT

1. Methods, Procedures, and Facilities

The Westport County Water District clearly has the need to improve its water storage system. The overall goal is to reduce water system losses, which improves the management of the system, reduces unnecessary operating expenses, assure the health and safety of the water supply, and increases the optimization of demands on the water source. This project proposes to install a new water storage tank to decrease water losses in the system.

The major components of the project are as follows:

- New 100,000 gallon water tank
- Site Preparation
- Foundation and Piping Construction
- Installation of Tank and appurtenances

Rectifying deficiencies in the water system is a high priority for the District and it's customers. The District is prepared to begin the water tank replacement project as soon as the contract for the grant is approved and anticipates project completion within 18 months, after the contract is approved.

2. Task List and Schedule

This section will focus on the detailed tasks for completing the Westport County Water District Water Tank Replacement Project. The scope of services has been developed to meet the needs of the District and the requirements of the grant.

TASK 1: ENVIRONMENTAL DOCUMENTATION

An appropriate CEQA process will be followed for the proposed water tank replacement project. It is likely that CEQA requirements for the project will be met by a categorical exemption under 15301 Existing Facilities and 15302 Replacement or Reconstruction. Documentation that the project complies with environmental laws and regulations and that necessary permits have been obtained will be provided prior to disbursement of any funds.

TASK 2: LAND SURVEYING

The water storage tank location identified for the proposed project will be surveyed to provide topographic data for finalizing the site grading plan. The new tank will be located on existing District property and the surveying task will include the identification of existing right-of-way and property issues.

TASK 3: GEOTECHNICAL EVALUATION

A sub-consultant geotechnical specialist will evaluate the soils at the tank site through the use of field inspections, drilling, sample collection, lab analysis, and technical analysis. The collected data will be used to determine the foundation design and any necessary embankment stabilization as well as any other significant construction issues to be included on the plans and specifications.

TASK 4: DEVELOP AND REVIEW 30 PERCENT PLANS AND SPECIFICATIONS

Based on the data collected in the above tasks, a final predesign concept at the 30 percent level of completion will be developed. This is a normal step in the design process that is used to ensure that the project is on track with reviewing agencies and that any needed "mid course corrections" can easily be made before the project progresses too far. The District and California Department of Health (DHS) will review the 30 percent plans.

This submittal will include preliminary earthwork calculations, and preliminary design details for the water storage tank. The cost estimate developed in the original proposal will be refined to incorporate the latest information regarding construction quantities and costs as well as costs for manufactured and installed facilities.

TASK 5: DEVELOP AND REVIEW 90 PERCENT PLANS AND SPECIFICATIONS

The 90 percent submittal is nearly a complete bid package and cost estimate and generally only lacks finalization of some of the design details and finalizing the specifications. The District and DHS as well as the designer's in-house quality control will review the 90 percent plans and specifications.

TASK 6: OBTAIN APPROVAL

Obtain final approval for the project from the Department of Health Services. The Department of Health Services will provide a final check and approval of the plans.

TASK 7: DEVELOP 100 PERCENT PLANS AND SPECIFICATIONS

Taking input from the project reviews and quality control review, the contract documents will be finalized for bidding. The 100 percent plans and specifications will include a final Engineer's cost estimate to determine the adequacy of funding prior to project bidding.

TASK 8: BID PERIOD SERVICES

Once final plans and specifications are complete and approved, the project enters the bid phase. During the bid phase plans and specifications will be reproduced and distributed, pre-bid meetings and job site walks will be conducted, contractor questions during bidding will be addressed, bid results will be evaluated, and contractor bonds and insurance will be reviewed prior to executing the construction contract between the District and the Contractor.

TASK 9: CONSTRUCTION INSPECTION AND MANAGEMENT

One of the most critical steps in achieving the ultimate goal of the project is construction inspection and management. Qualified inspectors and construction managers will be used to ensure that the construction project runs smoothly, the client is properly represented in the field and that the work is constructed as intended. The engineering construction inspector will keep daily records of construction activities, inspection, and progress, including all significant oral and written communications with the contractor. The contractor will be notified of work not acceptable that must be corrected. A full time engineering construction inspector will be on site for the duration of the project, which is estimated to be eight weeks. The engineering construction inspector will be supported by office staff for submittal review, project management, and document filing.

During construction, weekly meetings will be held with the District, the contractor, and the inspector. The project schedule, materials supply list, contractor payment requests, contractor log submittals, and payroll and manpower utilization reports will be reviewed and updated as necessary. Also included are materials testing, administrative functions, tracking and monitoring the review process, preparing any recommended change orders, and maintaining accounts of commitments, expenditures, and forecasts of cash flows and costs to complete. Included in the construction phase is evaluation of periodic pay requests from the contractor.

TASK 10: CONSTRUCTION PROJECT CLOSEOUT

Once the project is complete, it enters the closeout phase. During the close out phase, the inspector would establish that all work is substantially complete and prepare a list of any unfinished work. Operations testing would be performed on the new system. Copies of the as-built drawings and any other accumulated records and reports would be turned over to the District. A notice of completion would be prepared and recorded with the County Clerk, and recommendations concerning final payments to contractors and the release of retained percentages would be prepared.

TASK 11: QUARTERLY DWR REPORTING

Quarterly progress reports shall be generated as requested by DWR. The quarterly report shall include a summary of the proposed project budget and schedule performance to date. The quarterly progress reports will be submitted after every three months throughout the duration of the project.

TASK 12: GRANT ADMINISTRATION

The District as the applicant is the overall administrator of the Grant. The District will oversee the completion of the work and shall review and submit monthly reimbursement requests.

3. Monitoring and Assessment

Monitoring and assessment will be conducted throughout the construction process. A Project Quality Plan will be developed by the project manager at the start of the project. The initial step will be to identify project milestones. They will be identified by reviewing the scope of work and considering significant stages of the design and construction processes. The Project Quality Plan will identify the quality reviews to be performed at each milestone. The review procedures for to be used at any given milestone are determined by the project manager and based on the specific needs of the project. They include discipline review, graphic standards review, project manager review, client comment review, coordination review, interdisciplinary review, and quality assurance review.

During project construction, a thorough construction and inspection plan will be followed. Successful construction management begins and ends with thorough, accurate, and complete documentation. Documentation takes the form of photographs, videotapes, daily inspection reports, a daily diary, submittals and responses, Requests for Information (RFI), Requests for Cost Proposals (RFCP), field trouble reports, change orders, progress pay applications, and other forms of documentation that cover all major aspects of the project. Each of the forms of correspondence between the contractor, the construction inspector and manager, and the owner are tracked with control logs so that it is known when each construction related document passes through each parties hands. Using this approach, the details of the construction project can be tracked.

The success of the completed project will be demonstrated through an increase in the effective operation of the District Water system, a reduction in District operating and maintenance costs, and more efficient use of water. The new telemetry system that will be provided the new water tank will provide the District with a means to determine the amount of storage in the tank and to control the pumps to reduce water losses. Its success will also be demonstrated through a reduction of public works staff time associated with managing the water system and a reduction in costs associated with repairing the old redwood water tank.

4. Preliminary Plans and Specifications

The Westport County Water Agency has long recognized the need for the replacement of their water tank, but it has been an issue of obtaining adequate funding to make the necessary improvements. The project has been evaluated by the District Engineer who recommended replacement of the water tank.

This project consists of the construction of a new 100,000 gallon water tank. The tank will be installed on District property near the existing deteriorating redwood water tank. The new water storage tank will be made of glass fused bolted steel, colored green to blend in with the surroundings. Glass fused bolted steel was chosen because it is not only cost competitive

compared to welded steel for the sizes considered, but it also has lower maintenance costs. The glass coating is on the interior and the exterior of the tank and does not require recoating for the life of the tank, which is 50 years or more. The glass coating eliminates recoating, which is typically every 10 to 15 years for a painted steel tank and can be up to 20% of the cost of a new tank. The new water tank will be constructed to AWWA standards.

The piping, valves, and other features will be constructed per the County of Mendocino standard details, State of California Standard Plans and Specifications, and as per industry standards for water systems. The plans and specifications will be reviewed by the California Department of Health Services Office of Drinking Water for conformance with their regulations.

C. QUALIFICATIONS OF THE APPLICANTS AND COOPERATORS

The Project Manager is Steven X. McHaney. A copy of his resume is attached on the following pages.

WINZLER & KELLY
CONSULTING ENGINEERS

Steven X. McHaney
Project Manager

Proposed Responsibility
Project Manager
Civil Environmental Engineer

Education
B.S., Environmental Resource Engineering, 1986

Professional Registration
Professional Engineer -
California
Oregon
Idaho
Hawaii

California Grade 3 Water Treatment Plant Operator

Experience

- Mr. McHaney continues to serve as the District Engineer for the Palmer Creek Community Services District in Humboldt County. Mr. McHaney developed a conceptual plan for the water system, finalized low interest loan and grant funding through Rural Development from the federal government, and completed the assessment district process. His work included locating potential well and reservoir sites, negotiating with property owners, and permitting through the Department of Health Services and the County. Mr. McHaney managed the design of tanks, pump stations, transmission pipelines, wells, and control systems.

- Mr. McHaney serves as the City Engineer for the City of Trinidad, California. One of the main parts of the City infrastructure is the water treatment plant that takes raw water from Luffenholz Creek. This water supply is of very poor quality in the winter months and Mr. McHaney works with the water treatment plant operator and the City water commissioner to keep the plant operating throughout the year. Mr. McHaney is on call and responds during periods when water treatment plant operational assistance is needed and during emergency conditions.

- Mr. McHaney also serves as the City Engineer for the City of Rio Dell, California. The water system is of the main components of the City infrastructure. Mr. McHaney recently completed the design and construction administration of the 0.5 mgd Emergency Interim Water Supply System including water intake and treatment systems. Mr. McHaney is also completing a water supply feasibility study for the City of Rio Dell that outlines the long term water management strategy for the City.

- For the City of Pittsburg, Mr. McHaney was the project engineer responsible for the development of a water system master plan for meeting the domestic, commercial and industrial water needs of the city over a 20 year planning horizon. No hydraulic modeling of the system had ever been completed previously and Mr. McHaney researched historical water consumption and projected future water needs. He developed a nearly 1,000 pipe hydraulic model using KYPIPE and calibrated it using field measurements. The model was used to size pipelines, reservoirs, and pump stations and to simulate fire flow conditions. Extended period simulations were used for modeling the diurnal effects of filling and drawing reservoirs under average and maximum day plus fire flow conditions.

  Mr. McHaney developed a detailed five year capital improvements program and a conceptual long term program based on finding from modeling and field investigations. His recommendations included improvements to the existing system to provide more reliable fire flows to commercial developments by providing a looped distribution system. Recommendations also included improvements to several areas of existing flow and pressure deficiencies as well as future facilities needed to serve master planned growth. Mr. McHaney also developed a modified water pricing schedule based on the actual cost to convey water to individual pressure zones.

Steven X. McHaney
Project Manager

Experience

- For the Dublin San Ramon Services District, Mr. McHaney developed hydraulic models for potable water, recycled water, and wastewater for a 5,000 unit and a 6,000 new development in the District's service area. He used CYBERNET to develop separate potable and recycled water models for each development and HYDRA to develop the wastewater models for the developments. The model was operated under Maximum day plus fire flow conditions to size 250,000 feet of pipelines, 10 reservoirs, and five pump stations in the new developments.
- In another project for the Dublin San Ramon Services District, Mr. McHaney modified the District's existing CYBERNET model to evaluate the six options for siting a new pressure zone 1 reservoir for serving Eastern Dublin. The CYBERNET model was also used for evaluating the effect of moving the District's main potable water turnout. An extended period simulation was developed to evaluate the effect on the reservoir storage capacity and the transmission main pressure under maximum day plus fire flow conditions. The results of the modeling were used for the development of long term reservoir siting plans and near term interim options that maximized the use of existing facilities and delayed the construction of new facilities.
- Mr. McHaney served as the discipline Engineer for development of the City of San Jose's Phase II Reclamation Facility Plan which was the initial planning for the South Bay Water Recycling Project. Mr. McHaney conducted a recycled water market assessment over a study area in excess of 150 square miles. In excess of 5,000 potential landscape and agricultural irrigation customers were identified by Mr. McHaney through consideration of water purveyor records, evaluation of aerial photographs and research of individual potential customers. Mail surveys and site investigations were conducted to screen the potential customers to over 550 selected customers with an average recycled water demand of 26 mgd. Monthly and daily demand variations were assessed along with storage and distribution requirements as well as irrigation management considerations.

  An additional phase of work involved the development of a master planned distribution network to serve the over 550 potential recycled water customers. Mr. McHaney evaluated the pressure zones, pump stations, and distribution mains needs of the system and assisted in the development and calibration of a CYBERNET computer model. The resulting system model was developed to serve these customers through five pressure zones, with 14 reservoirs, 21 pump stations and over one million feet of pipe up to 42 inches in diameter to serve a peak hour demand of over 200 million gallons per day. The results of the modeling were used to develop a several hundred million dollar capital improvements program.

  The initial market assessment and the CYBERNET model were integrated into a complete information management system to be used as a database for tracking individual customer's water use, for billing, for long trend analysis, and to provide a graphical interface for operators. The CYBERNET model and the information management system serve as the centerpiece of the long term planning for South Bay Water Recycling.
- As Project Engineer for the Sonoma Valley County Sanitation District, Mr. McHaney was responsible for the development of a comprehensive

Experience

recycled water system project management plan and worker training program. He was responsible for interfacing between vineyard and pasture users of reclaimed water and regulatory agencies. Mr. McHaney negotiated permits with the RWQCB to meet user needs as well as the needs of the district.

He researched the water quality and quantity needs for each user. An additional important responsibility was the development of a worker training program that met the health related requirements as well as the agricultural application of reclaimed water. Mr. McHaney produced a professionally developed training videotape that also served as a public relations tool. Mr. McHaney conducted training sessions for management and oversaw training of workers.

- Mr McHaney was the Project Engineer for the development of three Plans of services for the Dublin San Ramon Services District. hese Plans of Services were developed to meet the developer projected needs of the Tassajara Valley Property Owners Association (TVPOA), the Windemere Ranch Partners portion of the Dougherty Valley, and the Schaefer Ranch development. Each of these Plans of Service included developing potable water, recycled water, and wastewater needs for each development and then developing the required infrastructure meeting District criteria to meet these needs.

  The approach to each of these projects was based on meeting the short term needs of the developers during construction and phasing infrastructure to meet the buildout schedule of the developer while minimizing the unused capacity of installed infrastructure. Separate CYBERNET potable water and recycled water models were developed along with HYDRA models for the wastewater system.

  Through an additional study, Mr. McHaney preliminarily evaluated integrating service for the Windemere project with Eastern Dublin and other area developments. Through this integration of service, there is the potential for saving on overall storage volume and the ability to develop shared transmission mains and looped distribution systems to provide greater reliability.

- As Project Manager for the Dublin San Ramon Services District, Mr. McHaney developed a detailed evaluation of providing potable water service to pressure zone 4 on the West Side including the previously evaluated Schaefer Ranch. Under this study Mr. McHaney evaluated potential developments in the region and resulting water demands. He also evaluated the potential requirements of the Wildfire Management Plan and how it could affect the fire storage and vegetation management requirements. Mr. McHaney considered six reservoir sites and developed an overall zone 4 distribution concept. He also developed several implementation scenarios that could accommodate various orders of development in the regions of the West Side.

- For Discovery Bay in Brentwood, California, Mr. McHaney served as the Project Engineer for the development of a potable water acquisition and treatment concept for a potential waterfront housing development. This work included locating water supply, developing a treatment system

Experience

meeting Department of health Services Requirements and development of a transmission and storage system concept. Mr. McHaney developed conceptual plans and specifications and cost estimates including project phasing to meet developer anticipated construction schedule.

D. BENFITS AND COSTS

1. Budget Breakdown and Justification

A budget breakdown summary is included in Table 2, attached at the end of this section. More detailed cost breakdowns are included in Tables 3 to 6, attached at the end of this section. The cost justifications for the various project components are included below.

a. Land Purchase/ Easement: No land purchases or easements will be required for this project
b. Planning/Design/Engineering: Included with this section are Tables 3 to 7 that show a detailed cost break down by tasks. Tasks 2, 3, 4, 5, 6, 7, 8, 11, and 12 were included as part of this category. The personnel and time required for each of these tasks is a reasonable estimate based on past experience with project of this type.
c. Materials and Installation: The costs for site preparation and new pipe installation were represent costs for this type of work for similar project and is considered reasonable.
d. Structures: The only structure cost is for the water tank. The cost includes foundation construction, tank assembly and testing.
e. Equipment Purchases/ Rentals: No equipment purchases or rentals will be required by the City of Rio Dell to complete project.
f. Environmental Mitigation/ Enhancement: This project replaces existing infrastructure. It is expected that the CEQA process will result in a categorical exemption. The project will not be subject to NEPA requirements. The cost is estimated as part of Task 1.
g. Construction/ Administration/ Overhead: Included with this section are Tables 3 to 6 that show a detailed cost break down by tasks. Tasks 9 and 10 were included as part of this category. The personnel and time required for each of these tasks is a reasonable estimate based on past experience with project of this type.
h. Project/ Legal/ License fees: No legal or license fees will be required for this project.
i. Contingency: A 5% contingency is included in the project cost. This is a reasonable value based on the degree of possible underestimation of the cost of tank installation.

2. Cost-Sharing

The proposed project does not include additional funding sources outside this grant application.

3. Benefit Summary and Breakdown

This proposed project is expected to result in the replacement of the existing deteriorating redwood stave water tank with a glass fused steel water tank, located adjacent to the existing tank on the same piece of property. The replacement water tank has a life of at least 50 years. There are two quantifiable benefits to this project. This first is the reduction in water system costs, and the second is water saved by reducing system leaks and tank overflows.

The proposed water tank replacement project will decrease District system costs through two methods. The first is reduced operations costs. Less water will need to extracted from Wages Creek, treated and pumped into storage. This reduces operator time, chemicals, power costs, and

maintenance associated with water system operations. This benefit can be found in Section D.4. Second it will reduce the maintenance costs for the water storage system. This benefit can also be found in Section D.4. The direct beneficiary of the proposed project is the District, the proposal applicant. All District customers, as a result of decreased system costs, will see direct and indirect benefits from the proposed project. Enhanced system reliability and reduced operations costs are benefits each customer will experience.

The amount of water saved by reducing system leaks and eliminating tank overflows was estimated to be 9 million gallons (27.5 ac-ft) over 10 years or an annual average of 0.9 million gallons (2.75 ac-ft). The beneficiaries of water conservation are discussed below.

There are also several non-quantifiable benefits to this project as well. As mentioned in Section B.2. The Mendocino County General Plan supports providing instream flows adequate to maintain and protect historic fisheries values within all county streams. Mendocino County has approximately 954; 1,352; and 2,423 miles of habitat used by king salmon, silver salmon, and steelhead respectively. Sliver salmon inhabit numerous small coastal streams, and steel head inhabit almost every stream in the County. In addition, Wages Creek contains coho salmon, which is an endangered species. The reduction of unnecessary demands on the District's water source, Wages Creek, would leave more water instream for beneficial fisheries and wildlife use. This item is considered to benefit to Wages Creek it's natural inhabitants. Water conservation also benefits Mendocino County and state water management plans.

Another benefit is the improved management of the Westport water system. This is considered primarily an applicant benefit. The reduction in water tank overflows due to nonfunctioning telemetry will be eliminated with the proposed project. This reduction in addition to the reduction in water losses will improve system efficiency, which will make it easier for the District to plan its water use, system upgrades, and rate structure.

In recent years, the State of California has been experiencing limitations in available energy. This project will reduce system energy demands, which will leave more energy available for others. This item is considered to benefit all California residents within the power grid that serves the Westport facility.

This project is located outside of the CALFED water management boundaries and will not contribute directly to CALFED goals. However, as demonstrated above, this project does benefit regional and state water management as well as the Westport County Water District.

4. Assessment of Costs and Benefits

A detailed estimate of benefits is included in Table 7. The first quantifiable benefits relate to system operating expenses. It was assumed that the system is losing approximately 15% of its water through leaks in the storage system and water tank overflows. This is expected in increase by approximately 3% per year due to the poor condition of the tank. The water volume that could be conserved through this project was multiplied by the cost of water to calculate the benefits resulting from water savings. The benefits were brought back to present value using a 6% interest rate.

There were two different values used for the cost of water. The current cost was estimated by dividing the total water use by the system operating expenses, derived from the District's FY2001-2002 Budget. However, as is explained in this section, water costs for this system are expected to increase in the next few years. The Westport County Water District currently uses Wages Creek for it's water supply source. The coho salmon is a year round resident in Wages Creek. It has been listed as an endangered species. This is beginning to present problems with water extraction. As time goes by it is expected to be a limitation on the amount of water that the District can remove from the Creek. The limited capacity of this Creek to provide water for the District and for fisheries has caused the District to initiate a water supply feasibility study that will look into alternative supplies of water. It is likely that within the next few years the District will switch water supplies to a nearby groundwater source. The District has installed a test well to start evaluating the water quality of the ground water source. They have found it to be high in iron and manganese, which will require more expensive treatment than their current source. The cost of water was increased in year 2004 as a result of the expected change in source water.

The second quantifiable benefit is for the reduction in maintenance costs on the existing water tank, including the broken roof. The current annual maintenance cost of water tank was estimated from the District's FY 2001-2002 budget at 3,500. This is expected to increase at 5% a year until the tank can no longer be used. The remaining life of the water tank was estimated at 10 years, and the tank would be replaced in the 11^{th} year 2013. A salvage value of $15,000 was included at the end of the life of the current project 50 years. The benefits were brought back to present value using a 6% interest rate. This is a very conservative approach to estimating benefits, which would be higher due to water system costs that may increase at greater than the rate of inflation.

The total project costs are included in Table 2 and amount to $206,339. The project benefits are included in Table 10 and amount to $ 208,604. These figures result in a cost benefit ratio of over 1. This B/C ratio shows that the project is locally cost effective, which is a requirement of the Prop 13 Urban Grant program.

E. OUTREACH COMMUNITY INVOLVEMENT AND ACCEPTANCE

The proposed project will be coordinated with the District Board of Directors. The Board has held a series of public meetings where the issue of water supply, water storage, and water conservation have been discussed. The public has been very interested in pursuing cost effective projects that improve water use efficiency and reduce costs.

During the design and construction project, the project manager will present project status reports to the District Board at their bi-monthly meetings. The meetings are open to the public. At those meetings the project manager can address any questions and concerns.

Table 4: Scope of Engineering Services
Westport Water Tank Replacement Project

Project Manager: Steve McHaney
Prepared by: Rebecca Williams
Reviewed by: Steve McHaney
Reviewed Date: 2/27/2002

DIRECT LABOR
COST ESTIMATING SHEET

Task Name		LABOR COSTS										Total hours	INDIRECT (2) SUB-TOTAL	LABOR SUB-TOTAL
		Senior $125	Proj. Eng. $110	Staff Eng $80	Inspector (1) $87	Scntst $90	Profes-sional Surveyor $100	Survey Crew (1) $195	Tech $60	Drafting $60	Clerical $40			
Task 1: Environmental Documentation	(hr)	2	4	0	0	40	0	0	0	4	4	54		
	($)	$250	$440	$0	$0	$3,600	$0	$0	$0	$240	$160		$216	$4,906
Task 2: Land Surveying	(hr)	2	0	4	0	0	16	24	0	8	4	58		
	($)	$250	$0	$320	$0	$0	$1,600	$4,680	$0	$480	$160		$232	$7,722
Task 3: Geotechnical Evaluation	(hr)	0	8	0	0	0	0	0	0	0	0	8		
	($)	$0	$880	$0	$0	$0	$0	$0	$0	$0	$0		$32	$912
Task 4: Develop and Review 30% Design Plans and Specifications	(hr)	2	16	32	0	0	0	0	0	40	8	98		
	($)	$250	$1,760	$2,560	$0	$0	$0	$0	$0	$2,400	$320		$392	$7,682
Task 5: Develop and Review 90% Design Plans and Specifications	(hr)	2	16	32	0	0	0	0	0	40	0	90		
	($)	$250	$1,760	$2,560	$0	$0	$0	$0	$0	$2,400	$0		$360	$7,330
Task 6 Obtain Approval	(hr)	0	4	0	0	0	0	0	0	0	0	4		
	($)	$0	$440	$0	$0	$0	$0	$0	$0	$0	$0		$16	$456
Task 7: Develop 100% Design Plans and Specifications	(hr)	4	8	8	0	0	0	0	0	24	8	52		
	($)	$500	$880	$640	$0	$0	$0	$0	$0	$1,440	$320		$208	$3,988
Task 8: Bid Period Services	(hr)	0	16	0	0	0	0	0	0	0	4	20		
	($)	$0	$1,760	$0	$0	$0	$0	$0	$0	$0	$160		$80	$2,000
Task 9: Construction Inspection and Management	(hr)	8	40	0	400	0	0	0	0	0	40	488		
	($)	$1,000	$4,400	$0	$34,800	$0	$0	$0	$0	$0	$1,600		$1,952	$43,752
Task 10: Construction Project Closeout	(hr)	2	16	0	8	0	0	0	0	16	8	50		
	($)	$250	$1,760	$0	$696	$0	$0	$0	$0	$960	$320		$200	$4,186
Task 11: Quarterly DWR Reporting	(hr)	0	8	0	0	0	0	0	0	0	4	12		
	($)	$0	$880	$0	$0	$0	$0	$0	$0	$0	$160		$48	$1,088
Task 12: Grant Administration	(hr)	2	8	0	0	0	0	0	0	0	4	14		
	($)	$250	$880	$0	$0	$0	$0	$0	$0	$0	$160		$56	$1,346
TOTAL		$3,000	$15,840	$6,080	$35,496	$3,600	$1,600	$4,680	$0	$7,920	$3,360	948	$3,792	$85,368

(1) Rates are based on state prevailing wage laws.
(2) Indirect cost is based on $4/ labor hour which covers mileage, phones, postage, reproduction, film and developing, etc.

Table 8: Benefits for Reductions in System Operating Costs
Westport CSD Water Tank Replacement Project

(1) Annual Raw Water Demand	4.680	mil gallons
(2) Annual Metered Water Demand (1998)	3.744	mil gallons
(3) Annual Operations Costs (current plant)	$35,000	
(4) Cost per mil. Gallon	$7,478	$/ mil. gallons
(5) Annual Operation Cost (New Plant)	$50,000	
(6) Cost per mil. Gallon (2)	$10,683	$/ mil. gallons

(7) Annual Increase in Water Losses	3%
(8) Interest Rate	6%

Year	Operating Conditions	Percentage Tank Leakage of Raw Demand	Annual Water savings (mil gal)	Annual Cost Savings	Present Value
(9)	(10)	(11)	(12)	(13)	(14)
2002	Current Water Plant	15.0%	0.702054375	$5,250.00	$5,250
2003	Current Water Plant	15.5%	0.723116006	$5,407.50	$5,101
2004	New Water Plant	15.9%	0.744809486	$7,956.75	$7,081
2005	New Water Plant	16.4%	0.767153771	$8,195.45	$6,881
2006	New Water Plant	16.9%	0.790168384	$8,441.32	$6,686
2007	New Water Plant	17.4%	0.813873436	$8,694.56	$6,497
2008	New Water Plant	17.9%	0.838289639	$8,955.39	$6,313
2009	New Water Plant	18.4%	0.863438328	$9,224.05	$6,135
2010	New Water Plant	19.0%	0.889341478	$9,500.78	$5,961
2011	New Water Plant	19.6%	0.916021722	$9,785.80	$5,792
2012	New Water Plant	20.2%	0.943502374	$10,079.37	$5,628
TOTAL			8.991768999	96058.4677	$67,326

Notes:
(1) Estimated based on metered volume plus 25%. It was estimated that the system is experiencing a 25% system water loss including water losses from leaks in the water tank, water tank overflows, and other distribution system water leaks

(2) Metered water volume based on available District Data.

(3) Annual operations costs based on the District's FY 01-02 Budget. The costs associated with water tank maintenance were not included in the calculation because benefits due to tank maintenance are accounted for separately.

(4) The cost of water per million gallons was calculated by dividing the system operations costs by the annual raw water volume.

Table 8: Benefits for Reductions in System Operating Costs
Westport CSD Water Tank Replacement Project

Notes continued

(5) Annual operations costs are expected to increase with the switch from a surface water source to a groundwater source high in iron and manganese. It is expected that this new source would start being used in year 2004.

(6) The cost of water per million gallons was calculated by dividing the revised system operations costs by the annual raw water volume.

(7) Due to the deteriorating condition of the water tank, water losses are expected in increase by 3% annually.

(8) An intereste rate of 6% was used to bring all dollar values into the present.

(9) Year water losses and water savings are expected to occur.

(10) This column indicates the whether the system is operatin with its current supply and plant or a new plant treating groundwater.

(11) An initial water loss of 15% from the water tank was used. This includes leaks from the water tank and tank overflows. This value is expected to increase by 3% annually due to increasing deterioration of the water tank.

(12) Annual water savings represent the water not lost due the the proposed project. They were calculated by multiplying the raw water demand by the percent water leakage.

(13) The dollar value of water saving was calculated by multiplying the water saved by the cost per million gallons.

(14) The present value of the water savings was calculated using a 6% interest rate.

8.991769 27.5948

TABLE 1
Westport County Water District Water Tank Replacement Project

Task Name	Estimated Time	2002					2003												2004		
		A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
DWR Contract Signed																					
Task 1: Environmental Documentation	6 weeks																				
Task 2: Land Surveying	4 weeks																				
Task 3: Geotechnical Evaluation	4 weeks																				
Task 4: Develop and Review 30% Design Plans and Specifications	8 weeks																				
Task 5: Develop and Review 90% Design Plans and Specifications	2 weeks																				
Task 6: Obtain Approval	4 weeks																				
Task 7: Develop 100% Design Plans and Specifications	4 weeks																				
Task 8: Bid Period Services	4 weeks																				
Task 10: Construction Inspection and Management	8 weeks																				
Task 11: Construction Project Closeout	4 weeks																				
Task 12: Quarterly DWR Reporting	1x/quarter																				
Task 13: Grant Administration	Full duration																				

Note: Schedule excludes Review Time.